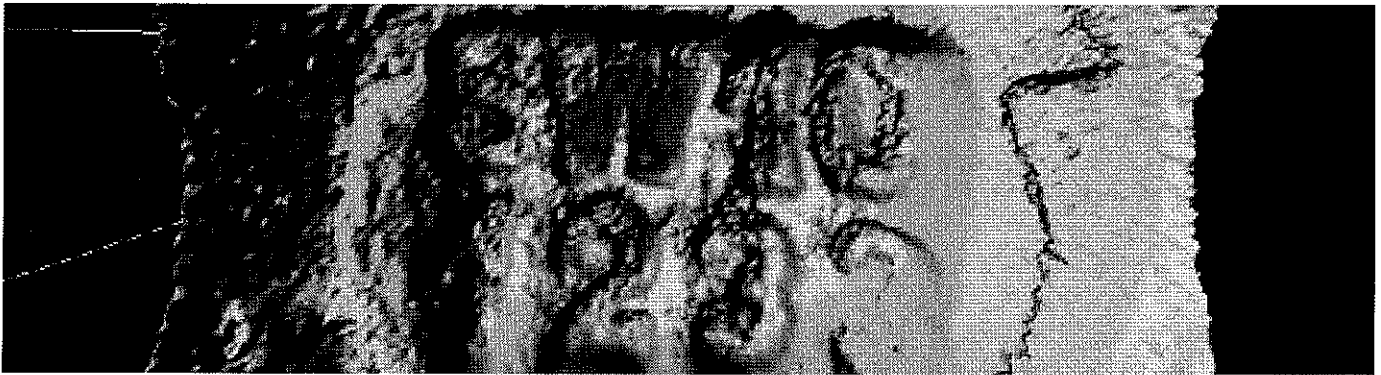


MICROSTAMPING TECHNOLOGY: PRECISE AND PROVEN

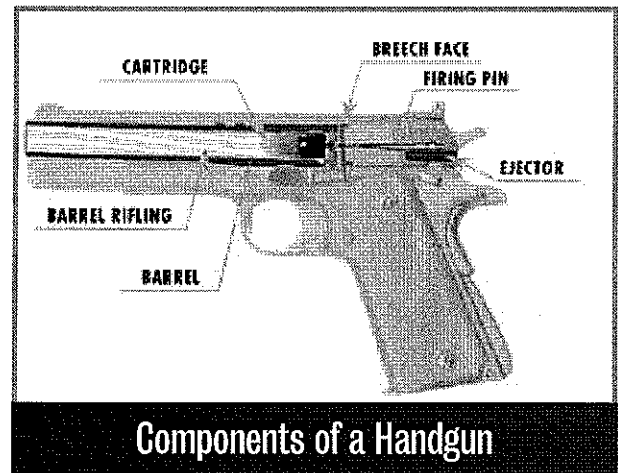


On October 13, 2007, California Governor Arnold Schwarzenegger made history by signing legislation that will give law enforcement officials in the Golden State unprecedented new tools to solve gun-related crimes. AB-1471, the "Crime Gun Identification Act of 2007," mandates manufacturer "microstamping" of all new models of semiautomatic handgun models sold in the state starting in 2010.

In his signing statement for AB-1471, Governor Schwarzenegger acknowledged that public safety is one of the most important roles of government. Following the governor's lead, policy makers in other states and the U.S. Congress are showing significant interest in implementing microstamping technology.

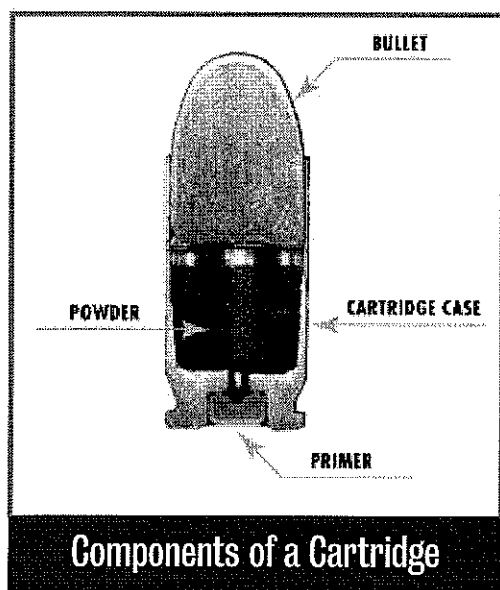
AN EVOLUTION IN BALLISTIC IDENTIFICATION

Microstamping technology utilizes lasers to make precise, microscopic engravings on the internal mechanisms of a gun, such as the breech face and firing pin. As the gun is fired, information identifying the make, model and serial number of the gun is stamped onto the cartridge as numbers and letters. The technology is designed to aid law enforcement officials investigating homicides and other crimes by allowing them to trace firearms through cartridge casings found at crime scenes. Tracing can provide a critical lead in investigations by identifying the original purchaser of a gun used in a crime.



Microstamping was originally conceived in the 1990s by Todd Lizotte and Orest Ohar while developing micromachining and microidentification technologies for the electronics industry. After successfully applying the technology in the computer industry, the two began experimenting with firearms and discovered that they could etch up to 20 characters onto the tip of a handgun's firing pin. When they put the firing pin into a handgun, fired a round, and examined the cartridge case under a microscope, they found that the mark was readily visible on the cartridge case. Subsequent tests revealed that the mark remained clearly visible even after thousands of rounds were fired.

Lizotte and Ohar realized that microstamping had significant implications for the future of ballistics identification. They pioneered new methods to make microstamped markings tamper-resistant, in part by utilizing advanced metallurgical coatings and by adding redundant markings that can be identified even if the alphanumeric stamps on the firing pin tip are removed.



Microstamping represents a significant improvement over existing ballistic identification technology. Through the National Integrated Ballistic Information Network (NIBIN) program, the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) currently deploys Integrated Ballistics Imaging System (IBIS) equipment and technology to state and local law enforcement agencies for use in comparing ballistic evidence found at crime scenes. IBIS uses imaging software to capture images of the unintentional markings on bullets and cartridge cases recovered at crime scenes and compare them to similar evidence from other crime scenes. These unintentional markings are produced by tool marks left on the firearm during the manufacturing process. For close to a century, trained firearms examiners have used these unintentional markings to positively identify cartridge cases fired by the same gun. By automating the process and narrowing the data only to likely matches, NIBIN allows law enforcement agencies to discover links between crime scenes that might not otherwise be apparent.

NIBIN has proven its value as a law enforcement tool, but even at its fullest potential, it has a significant limitation: it only contains images of ballistic fingerprints from past crime scenes. As a result, NIBIN cannot lead investigators directly to a specific firearm that produced a ballistic fingerprint unless that weapon is eventually recovered.

Microstamping is not subject to this limitation. Because the technology stamps the identifying characteristics of the firearm onto every cartridge ejected from the gun, investigators would not need to recover the crime gun itself to secure its serial number and initiate a trace request. The crime-solving potential is enormous.

CLOSING CASES, DETERRING CRIMINALS

The national "clearance" rate for homicide cases in 2005 was 62%¹—there were approximately 3,235 unsolved gun homicides that year.² In the future, a higher percentage of cases could be closed if investigators could identify crime guns solely from cartridge cases collected at crime scenes. The city of Boston is a prime example. In 2006, there were a total of 1,301 crimes involving a shooting in the city. Yet at 636 of these crime scenes, only shell casings—and not the crime gun(s) itself—were recovered.³

The technology could also help to deter "straw purchases" of firearms through licensed dealers, a common trafficking method. In a straw purchase, a prohibited purchaser recruits an individual(s) with a clean criminal record to pass a background check and purchase firearms for him/her. A straw purchase is a federal felony offense for both the straw purchaser and the ultimate possessor of the firearms. Straw purchasers would be less likely to act in this capacity if they believed a gun could be successfully traced back to them after being used in a crime.

IMPROVING DATA

Evidence suggests that microstamping would result in thousands of additional successful gun traces each year. Coupled with existing systems like NIBIN and IBIS, it would serve to exponentially increase the crime-solving capabilities of law enforcement officers across the nation. Moreover, microstamping would not necessitate the creation of any new database of gun owners or ballistics information. The technology would stand up on the existing trace database and add to the information already housed there.

Microstamping will also help law enforcement better understand the flow of illegally trafficked firearms by creating a stronger chain of accountability from the initial purchase onward. Law enforcement have made it clear that in today's environment "accurate and timely intelligence or information is absolutely essential in

effectively responding to any problem or crisis.”⁴ Microstamping would provide another data point to map trends in firearms trafficking—within a region, county, city, or even a section of a city. By identifying traffickers and putting them behind bars, authorities can curb the flow of illegal guns to criminals on America’s streets.

STANDING UP TO THE TEST

In recent years, microstamping technology has gone through numerous tests and studies to determine its feasibility and durability. Some critics have cast doubt on the technology—suggesting that it cannot withstand wear and tear under the violent conditions that exist within the chamber of a firearm. Microstamping, however, has been rigorously tested under varying conditions and has disproved all such claims.

Studies have been conducted by the following individuals:

Lucien Haag: Haag is a widely respected forensic scientist who was interested in testing the durability of microstamps and subsequently conducted his own tests. He acquired marked firing pins from Lizotte and tested them using guns that he thought were most likely to challenge the technology. His results indicated that marked firing pins continue to leave clear impressions on cartridges even after hundreds of rounds, and even in guns that operate under extremely high pressure.⁵ In an abstract presented before the 2004 conference of the Association of Firearm and Tool Mark Examiners (AFTE), Haag mentioned his earlier doubts about the technology’s durability, but noted, “The manufacturer was contacted and subsequently embossed the tips of firing pins from several machine guns, a submachine gun, and a Glock pistol for a variety of tests by this examiner ... The various characters on all these firing pins were easily readable in all types of primers tested and after hundreds of shots.”⁶

George Krivosta: Krivosta is a forensics examiner who conducted a microstamping test whose results were published in the Winter 2006 edition of the AFTE Journal. In the article, Krivosta questioned the decipherability of microstamped markings, criticized the durability of the engraved firing pins he tested, and suggested that the countermeasures that Lizotte had developed to defeat the intentional defacement of microstamped firing pins were insufficient. Krivosta concluded that “implementing [microstamping] will be much more complicated than burning a serial number on a few parts and dropping them into firearms being manufactured.”⁷

“...Forensic testing of ammunition used in a crime is the most effective way of tracing criminal activity.”

- Governor Arnold Schwarzenegger

A closer examination of his study, however, reveals serious flaws in Krivosta’s methodology:

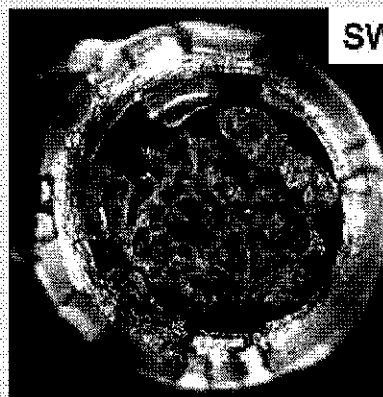
- Krivosta operated with the false assumption that microstamping would make expertly trained ballistics examiners obsolete. According to Krivosta, the average police officer should have the ability to examine and decipher microstamped markings at a crime scene. Such a claim was never made by either Lizotte or Ohar.⁸ As a result, Krivosta did not employ the technology that one would find in any standard ballistics lab in examining microstamped markings during his testing.
- In his test, Krivosta used old firearms and non-optimized firing pins from an early research and development effort in Rhode Island. The technology Krivosta tested does not represent the mature microstamping technology that is currently available.
- Some of Krivosta’s self-imposed restrictions on the study were unreasonable. Krivosta required the successful transfer of seven of eight characters in order for a microstamped impression to be deemed “satisfactory.” In a real world investigation, however, even if only six characters could be read by a ballistics investigator, that would narrow the field to just five possible firearms!

Michael Beddow: While AB-1471 was being debated in the California legislature, Beddow, a graduate student at UC Davis, conducted a study on microstamping for a research paper entitled "What Laser Machining Technology Adds to Firearm Forensics: How Viable are Micro-Marked Firing Pins as Evidence?" In a subsequent university press release dated May 3, 2007, Beddow stated that microstamping "does not work well for all guns and ammunition tested" and required "more testing...to determine the costs and feasibility of a statewide program."

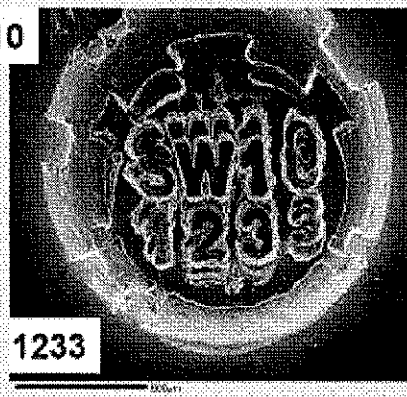
Assemblyman Mike Feuer, the sponsor of AB-1471, received a letter from UC Davis Chancellor Larry N. Vanderhoef shortly thereafter in which Vanderhoef apologized for the university's press release. In the letter, Vanderhoef "set the record straight" by pointing out that: a) Beddow's study had not been peer reviewed; b) it was not commissioned by the state legislature as the release claimed, and c) it drew false conclusions in regards to AB-1471.

The "false conclusions" cited by Vanderhoef referred to several serious flaws in the Beddow study:

- The study utilized vintage firearms that had never been considered for testing previously because of their model age (10-50+ years) and mechanical condition. They were acquired from the California Department of Justice firearm library. AB-1471, of course, applied only to new models of semiautomatic handguns.
- Beddow used non-optimized firing pins in his study, even though Lizotte offered him optimized firing pins—an offer Beddow declined due to budget constraints.
- Beddow used Optical Microscopy to examine microstamped markings in his study and had difficulty reading some of the impressions left by the technology. Many ballistics labs (including the lab at UC Davis), however, have access to a superior technology known as Scanning Electron Microscopy (SEM), which provides greater resolution and magnification. Lizotte later showed that questionably marked cartridges, similar to the ones fired in Beddow's test, were easily decipherable when using SEM techniques.



Optical Microscopy Stereo with Polarization (Marked Illegible)
UC David Method



SEM Microscopy
(Mark legible and decipherable)

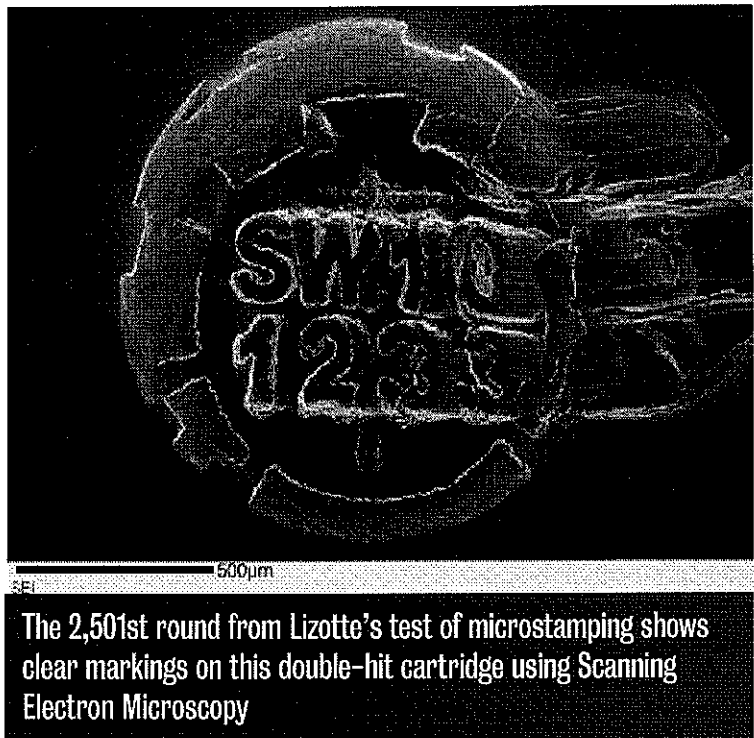


SEM Backscatter Microscopy
(Mark legible and decipherable)

The multi-hit cartridge on the left was deemed illegible by Beddow in his test. Using Scanning Electron Microscopy, Lizotte was able to clearly decipher multi-hit markings on cartridges.

Todd Lizotte: Immediately after the release of the Beddow study, microstamping co-inventor Lizotte conducted his own test in May 2007 to demonstrate the endurance and durability of the technology. In a stress test, Lizotte fired over 2,500 rounds from a Smith and Wesson .40 caliber semiautomatic handgun that had been outfitted with microstamping technology. The test employed fully optimized firing pins that were designed to work with that specific model of firearm. Lizotte used five different brands of ammunition.

Microstamped markings from the firing pin were transferred successfully, with all eight digits legible 97% of the time using both Optical Microscopy and Scanning Electron Microscopy. Additionally, breech face markings transferred to cartridge casings 96% of the time. This data included multi-hit primers, which are a result of rapid firing.⁹ Between firing pin and breech face markings, all eight digits were identifiable in all cases.



The 2,501st round from Lizotte's test of microstamping shows clear markings on this double-hit cartridge using Scanning Electron Microscopy

GUN LOBBY MYTHS

In addition to drawing misleading conclusions from existing studies on microstamping, the gun lobby has circulated a number of other myths in an attempt to discredit the technology. Below are some of their more common arguments, which are easily refuted with facts about microstamping:

Criticism: Law enforcement doesn't support microstamping technology.

Response: The recent passage of microstamping legislation in California revealed that the technology enjoys widespread support among law enforcement. AB-1471 garnered the support of 65 police chiefs and sheriffs across California. The bill was also endorsed by the California Police Chiefs Association and the Peace Officers Research Association of California (PORAC), the largest state-wide public safety association in the country.

Criticism: Microstamping technology can be easily defeated by criminals with household tools.

Response: Microstamp-equipped weapons have several "counter measures" to prevent tampering by common criminals. These include redundant gear and radial marks on the firing pin, as well as marks on the breech face of the firearm. Various technologies exist today to harden firearm surfaces that carry microstamped information. The gun industry could choose to implement such technologies. Previous history, however, shows that it may not be necessary. Criminals do not typically alter guns that are used in crime. Furthermore, the redundant markings on the breech face are difficult to access, and require lab-quality microscopy to ensure they have been removed successfully.

An individual would need intimate knowledge of firearms and microstamping, plus the appropriate tools, in order to render the technology ineffective. These tools are certainly not "household items," nor would the common street criminal be expected to have the knowledge necessary to defeat the technology.

Criticism: Criminals will "seed" crime scenes with stolen cartridges from firing ranges to throw off investigators.

Response: Theoretically, there is nothing to prevent criminals from using this tactic *now*, in order to discourage potential ballistic matches through NIBIN. Nonetheless, reports of such "seeding" occurring are extremely rare at best. In the urgency under which crimes are committed, most criminals fail to do things as simple as wearing gloves to hide fingerprints. Few offenders ever have the time or presence of mind to "dress" a crime scene following the commission of a violent crime.

One can also imagine the scene at a shooting range as criminals or gang members wander around and gather spent cartridge cases in bags. Conspicuous? One would certainly think so, and Americans should expect the owners of such ranges to engage in more responsible business practices.

Criticism: Microstamping would lead to astronomical increases in the price of handguns, costing \$200 per gun or more.

Response: The developers of microstamping have testified that it would cost manufacturers between \$0.50 and \$1.00 per handgun to incorporate the technology. Laser Light Technologies, Inc. (LLTI) corroborated this in a September 2007 letter to Assemblyman Mike Feuer, the sponsor of AB-1471. LLTI noted that "even in the worst case scenario" the price per handgun would range between \$0.50 and \$3.00. LLTI concluded: "The laser process as transferred to LLTI by the microstamping inventors is clear-cut and when coupled with appropriate fixtures, the task of processing the firearm components will be both uncomplicated and cost effective."

Criticism: Microstamped cartridges could not be recycled because they could implicate innocent individuals for crimes they did not commit.

Response: Trained ballistics examiners can easily identify between new and recycled cartridges. Differentiating between the two is a normal part of an examiner's responsibilities when investigating a gun crime. There is a standardized procedure for identifying the characteristics of a recycled cartridge, which include the orientation of ballistics markings, the use of reload primers, and mismatched bullets/projectiles and powder residue. This process would not change if microstamping were implemented; nor would any special requirements be necessary.

Criticism: Microstamping is a sole-source technology that would create a government-sanctioned monopoly for a single company.

Response: In reality, the patent holders of the technology, Todd Lizotte and Orest Ohar, have announced that a royalty-free license for microstamping will be provided for semiautomatic handguns sold for civilian use over the entire United States and its territories. This offer was formalized in a June 15, 2007, press release, which confirmed that there will be "no sole source" for microstamping technology and that the free "license will provide the firearm industry a variety of options for selecting pre-qualified equipment suppliers and job-shop services or they will have the option of building their own equipment or use [sic] existing equipment to perform the microstamping process."

"The Los Angeles County Sheriff's Department Homicide Bureau has hundreds of unsolved cases where the only evidence left at the scene of the crime were expended bullet casings. If these casings had imprinted information on them from the firearm, our investigators would have an exceptional chance of solving these heinous crimes."

- Los Angeles Sheriff Lee Baca

Criticism: Microstamping would be ineffective because most criminals purchase their guns illegally.

Response: Almost all crime guns are originally purchased through a retail outlet (in many cases, legally). The firearms tracing system and tools like microstamping are designed to identify how guns make their way from that first purchase to a crime scene. Once law enforcement officials have identified the first purchaser of a crime gun, they have a substantial lead to enhance an investigation.

Criticism: Microstamped markings would be altered by residue produced from the normal operation of the firearm and/or by owners cleaning and caring for their firearms.

Response: Microstamping technology is designed to resist even deliberate tampering. The normal operation of a firearm would not adversely affect the markings. The structures created by the microstamping process are much harder than the surfaces they will be in contact with, eliminating the possibility of them wearing down.¹⁰

Additionally, crime guns are frequently recovered with little wear and tear on them. A 2000 ATF study found that semiautomatic handguns have the shortest median "time-to-crime" of any firearm type, 4.5 years.¹¹ This marks the length of time from a firearm's first retail sale to its recovery by law enforcement as a crime gun. Joe Vince, a former Chief of ATF's Crime Gun Analysis Branch, has noted that crime guns are frequently recovered with fewer than 20 rounds fired.¹² In a 2007 test, Todd Lizotte fired thousands of rounds from a semiautomatic handgun equipped with microstamping technology and still demonstrated near perfect transfer rates.

Criticism: Microstamping technology has not been tested or studied "in the real world."

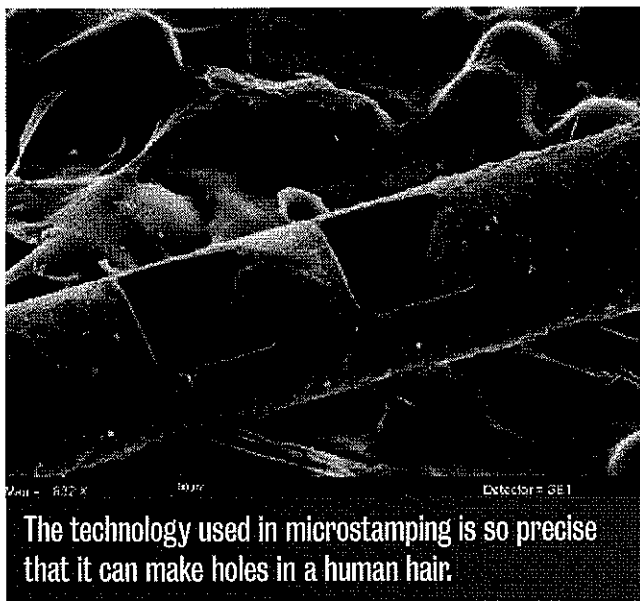
Response: See previous section, "Standing Up to the Test."

A TECHNOLOGY WHOSE TIME HAS COME

Across the United States, countless victims and survivors of violent crimes are unable to obtain justice because there is insufficient evidence in their cases to identify and convict the perpetrator(s). During the critical initial hours of an investigation, too many crime scenes fail to yield valuable clues that can break open, or even launch, a successful investigation.

Microstamping promises to remedy this problem and revolutionize gun crime investigation. No longer will law enforcement need to wait to recover a crime gun. When microstamping is fully employed, many more cartridges found at a crime scene will contain valuable information that can lead police directly to a shooter's door.

America is a country that prides itself on developing new technology and using that technology to better the lives of its citizens. We have cured diseases, invented platforms to communicate instantly on a global level, and even touched the stars. Another historic opportunity is now at hand. Microstamping will provide law enforcement with new tools to solve gun crimes, put dangerous individuals behind bars, and create safer neighborhoods for *all* Americans.



ENDNOTES

1. Department of Justice, Bureau of Justice Statistics, "Homicide trends in the United States," 2005, <http://www.ojp.usdoj.gov/bjs/homicide/cleared.htm>
2. Department of Justice, Bureau of Justice Statistics, Data Online, "Reported Crime in the United States—Total," 2005, <http://bjsdata.ojp.usdoj.gov/dataonline/Search/Crime/State/statebystateun.cfm?stateid=52>
3. Boston Police Department
4. Los Angeles Police Department, COMPSTAT Fact Sheet, http://www.lapdonline.org/crime_maps_and_compstat/content_basic_view/6363
5. Telephone interview with Lucien Haag, February 5, 2004
6. Haag, Lucien, "Ballistic ID Tagging—A Further Look," abstract presented before the 2004 conference of the Association of Firearm and Tool Mark Examiners, Vancouver, British Columbia
7. Krivosta, George G., "NanoTag Markings from Another Perspective," *AFTE Journal*, Volume 38, Number 1, Winter 2006, pp. 41-47
8. Lizotte and Ohar only suggested that in the *future* portable microscopy tools might be available to deploy at a crime scene.
9. All semiautomatic firearms induce oscillations and mechanical instabilities when pushed to the edge of their mechanical performance envelope. Firing events such as high frequency trigger pulls (also known as double-taps and triple-taps) induce firing pin vibrations that can delay the pin's retraction. The results can be seen as pin smearing and multiple-pin impressions on one cartridge. These cartridges can be difficult to decipher using standard optical microscopy techniques.
10. Even firing pin smearing during cartridge ejection, the most common instability during typical operation of semiautomatic firearms, does not wear away or deform the microstamped characters.
11. Department of Justice, Bureau of Alcohol, Tobacco and Firearms, "Crime Gun Trace Reports (2000): National Report," July 2002, p. 32, <http://www.atf.gov/firearms/ycgii/2000/>
12. *New York Times*, "Sniper Case Fuels a Debate Over Firearm Fingerprinting," October 18, 2002, <http://query.nytimes.com/gst/fullpage.html?res=9C02E0DE133DF93BA25753C1A9649C8B63&n=Top/Reference/Times%20Topics/Subjects/Identification%20Devices>

GLOSSARY OF TERMS

Ballistic fingerprint: A set of unique, reproducible markings left on each fired bullet and cartridge case by the firearm from which the bullet or cartridge case was fired.

Ballistic identification: The use of a ballistic fingerprint to identify the specific, individual firearm used to fire a given bullet or cartridge case.

Barrel: The tube on a firearm through which a bullet is propelled when a cartridge is fired.

Breech face: The flat, vertical surface that forms the rear of the firing chamber of a firearm.

Breech mark: A microscopic mark left on the base of a fired cartridge case by the surface of the breech face. Breech marks are most readily visible on the surface of the primer.

Bullet: The component of a cartridge, usually made of lead, that exits the firearm through the barrel when the cartridge is fired. Some lead bullets are "jacketed" with a layer of copper alloy or other metal.

Cartridge: A unit of firearm ammunition containing four components: primer, powder, bullet and cartridge case.

Cartridge case: The component of firearm ammunition, usually made of brass, that holds the primer, powder and bullet.

Ejector: On a semiautomatic firearm, a stationary metal bar or block that forces a fired cartridge case to eject from the firearm.

Ejector mark: An impression, usually visible to the naked eye, left on the base of a fired cartridge case by the collision between the cartridge case and the ejector. Microscopic details of an ejector mark are part of a firearm's ballistic fingerprint.

Firing pin: A narrow rod which, when released by pulling the trigger, springs forward and strikes the primer of a chambered cartridge, causing the cartridge to discharge.

Firing pin impression: An impression, visible to the naked eye, left on the primer of a fired cartridge by the firing pin. Microscopic details of a firing pin impression are part of a firearm's ballistic fingerprint.

IBIS: A computerized digital imaging system that captures and compares digital photographs of fired bullets and cartridge cases. IBIS stands for "Integrated Ballistic Identification System."

Magazine: A spring-loaded ammunition storage and feeding device that attaches to a firearm. A magazine can be detachable or fixed (i.e., non-detachable).

Metallurgical Coatings: Metal coatings deposited onto a surface by means of evaporation, sputtering or plating.

Metallurgical Lighting: Microscope lighting which uses various polarization techniques and interference contrast methods to enhance the edge image quality of microstructures to display detail that is otherwise unseen.

Microidentification: Process technology that produces identifying markings in order to prevent theft or tampering. Microidentification is utilized in the computer industry to safeguard against the counterfeiting of integrated circuits and commercial products such as toys and handbags.

Micromachining: A process method that utilizes lasers, reactive ion etching or chemical etching to allow the removal of microscopic amounts of material to form very precise and small parts. The process is used to make ink nozzles in inkjet printers.

Microstamp: A microscopic array of characters etched into the interior surfaces of a firearm during manufacturing, which transfers the characters to a cartridge case when the cartridge is discharged.

NIBIN: National Integrated Ballistic Information Network, operated by the Bureau of Alcohol, Tobacco, Firearms and Explosives and the Federal Bureau of Investigation. NIBIN uses the IBIS system to capture and compare ballistic fingerprints from cartridge cases and bullets recovered at crime scenes.

Powder: The component of firearm ammunition that ignites and burns when a cartridge is fired, releasing a tremendous amount of rapidly expanding gas that propels the bullet along the barrel.

Primer: A percussion-sensitive chemical mixture contained in the base of a cartridge. The primer explodes when struck by the firing pin, igniting the powder.

Rifling: A spiraling pattern of grooves on the interior surface of the barrel of most firearms, designed to cause the bullet to spin as it moves down the barrel.

Scanning Electron Microscopy: Scanning Electron Microscopy (SEM) is a magnification process that uses an electron gun to bombard an object with electrons. As this is occurring, a detector or grid picks up signals from the object in order to generate a three-dimensional picture of up to 30,000x magnification. The Backscatter Method of the technology uses the same equipment and process as traditional SEM, but examines electrons that are reflected off of the object in a specific direction to form a picture. This method differentiates between different elements such as iron or silver to create highly contrasted and clear images at 30,000x magnification.

Tracing: An investigative technique using existing records to identify the first retail purchaser of a firearm that was recovered in connection with a criminal investigation.

Senate Bill 174: Microstamping
William Morales
MAIG Regional Coordinator
City of Milwaukee
Mayor Barrett's Office of Violence Prevention

Good morning/ Good afternoon

I want to thank you for this opportunity to speak in support of Senate Bill 174 and how it would benefit Law Enforcement and enhance their ability to solve gun crimes faster.

My name is William Morales and I am a 20-year veteran of the Milwaukee Police Department. I am currently starting my second year on a leave of absence from the department working as Mayor Barrett's Regional Coordinator to the Mayors Against Illegal Guns national coalition and firearms advisor in his Office of Violence Prevention.

During my career with the Milwaukee Police Department I have spent over 13 years with the Tactical Enforcement Unit and had extensive training in different types of firearms. On the Unit I was a tactical trainer, a weapons armourer and a veteran counter-sniper. I also served our country in the Military on Active Duty and in the Reserves and am a Desert Storm Veteran.

I am currently a firearms advisor to Mayor Barrett and to 500 other Mayors in the National Coalition Mayors Against Illegal Guns. This is a bi-partisan coalition of Mayors, which Mayor Barrett was a founding member. Mayor Barrett and every member is focused on supporting the second amendment, enforcing existing gun laws and giving Law Enforcement the tools needed to solve and prevent crimes.

Microstamping will enhance the solvability of gun crimes where the firearm is NOT recovered but shell casings are left at the scene. Taking the normal process which a semi-automatic handgun fires and ejects a shell casing and applying a set of unique stamps, unique to the weapon that fired it. With this shell casing, Law Enforcement will be able to quickly know the make model, serial number and the original owner of the firearm. This will quickly put them on the trail of the perpetrator. This is not the answer to all of Law Enforcements crime solving needs, but this will allow for the "gun" to be traced without the gun being found. A Microstamped shell casing allows Law enforcement to obtain all the information needed to start the gun trace and that allows us to find the criminal faster. A shell casing without a microstamp tells us very little.

As a Police Officer, I have been to numerous "shots fired" calls, where there were only a few shell casings in the street. Many of these incidents initially produced very few viable witness descriptions of possible suspects or other leads. Microstamping would provide a starting point for the investigation from the shell casing and allow law enforcement to follow the trail of gun owners, starting with the first and eventually to the shooter.

It is true that all firearms start off legal, it is when they are used in a crime or sold or transferred to a prohibited person that they become illegal. The guns we are most concerned about are the ones that are purchased and then have a very short "Time to Crime", 1 year or less. These handguns are usually new model semi-auto's and are commonly obtained through straw purchase. Microstamping will quickly impact these types of gun crimes as well as straw purchasing.

I have been told a criminal "seeding" a crime scene with shell casings from other guns while he is shooting could defeat microstamping. I have never heard of anyone throwing down a handful of shell

casings, while shooting, just to foil a shooting investigation. This would never work. The shell casing has to match the caliber of the handgun fired. Also, please remember, Law Enforcement will always conduct a through investigation where the shell casing is just one piece of evidence among other pieces of evidence that build a case.

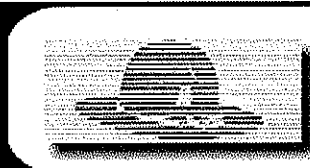
I have also been told that criminals could just simply pick up the shell casings. I have been to many; many shooting scenes and just simply, shots fired scenes where there are just shell casings on the ground and the smell of gunpowder in the air. No one pick up their shell casings now and I do not believe in the heat of the moment anyone is going to take the time to crawl around to look for the spent casings in the future.

One could replace the parts of the handgun, well that is not as easy as it sounds. I am sure we could have a whole line of people who were trained in a particular model quickly replace one part or another. But the stamp is on more than one part depending on the make and model of handgun . There are a many different models of handguns and some require tools and practice to disassemble. I do not see any criminals that I have dealt with over the years, cleaning their handguns let alone attempting to take it apart, swapping out parts and putting it back together again and still keeping everything functional. If this did occur, Law enforcement will still has every investigative tool available today.

Before I finished I wanted to let you know that I am also a LIFE MEMBER of the National Rifle Association and Life Member of the North American Hunting Club. I am also a competitive shooter. I understand firearms and how these firearm issues will impact law enforcement, myself as a private citizen, NRA member, hunter and shooter.

I believe this technology is the next step in the evolution of solving violent gun crimes.

Thank You.



Wisconsin Troopers' Association

Casey Perry – Executive Director

Glen Jones – President

2099 Ironwood Drive, Green Bay, Wisconsin 54304-1972

Phone: (Toll Free: 1-800-232-1392) Fax: (Toll Free: 1-800-232-1392)

<http://www.wi-troopers.org/>

December 1, 2009

To: Senator Lena Taylor, Chair,
Members, Senate Committee on Judiciary, Corrections, Insurance, Campaign
Finance Reform, and Housing

Fr: Casey Perry, Executive Director, Wisconsin Troopers' Association

Re: Support for Senate Bill 336, "DNA Saves"

I am submitting testimony on behalf of the Wisconsin Troopers' Association in support of Senate Bill 336. We applaud Senator Harsdorf, and Representative Hraychuck for their leadership in bringing this bill forward and for their commitment to a fair criminal justice system in Wisconsin. We also thank Senator Taylor for holding a hearing regarding this important matter. Modern tools such as DNA testing and analysis help streamline and increase accuracy within the justice system. As State Troopers, we know that an efficient and fair criminal justice system must be supported to effectively fight crime.

For more than a century law enforcement officers have taken fingerprints and mug shots upon arrest to match criminals to their crimes, maintain records of unique personal identification, and track repeat offenders. Collecting DNA samples at the time of arrest, along with fingerprints and mug shots, is a necessary next step in updating our standard operating procedures. By modernizing our arrest procedures with DNA collections we can more accurately match offenders to specific crimes, as well as expect to see both a decrease in wrongful convictions and a decrease in victims of repeat offenders.

Nationwide, DNA testing has led to the exoneration and release of more than 200 wrongly convicted individuals. Many of these individuals owe their freedom to the DNA samples collected upon the arrest of the another perpetrator. Without using the most accurate and advanced means available, Wisconsin risks being responsible for incorrect convictions and innocent people being imprisoned.

While DNA collection at arrests ensures reliability in convictions, it also gives law enforcement more tools to confront recidivism. A recidivism rate in Wisconsin of approximately 51 percent shows repeat offenders are a reality that we must combat with our full potential, assisted by DNA collection and analysis.

The people of Wisconsin expect their legislators to fight for their safety and empower our law enforcement officers to do their job with the utmost accuracy. DNA collection upon arrests has already been implemented in almost half of the states, including our neighbors Minnesota and Michigan. The reliable, responsible, and efficient use of forensic DNA analysis allows Wisconsin law enforcement the ability to bring true criminals to justice and avoid incorrect incarcerations. Please vote in favor of the DNA Saves legislation and give Wisconsin law enforcement officers the tools to effectively protect and serve. Wisconsin families deserve no less than an effective and efficient criminal justice system which ensures safe communities for everyone.

Thank you again for the opportunity to submit testimony on behalf of the Wisconsin State Troopers' Association. Should you have any questions or concerns regarding our position, feel free to contact Annie Early at (608) 259-1212.



Testimony of Stacy Harbaugh,
Community Advocate for the ACLU of Wisconsin
in opposition to SB 336 relating to collecting DNA samples upon arrest

Before the Senate Committee on Judiciary, Corrections, Insurance,
Campaign Finance Reform and Housing
December 1, 2009

Chairwoman Taylor and members of the committee, thank you for receiving the testimony from the American Civil Liberties Union of Wisconsin regarding Senate Bill 336 on DNA collection upon arrest. My name is Stacy Harbaugh and I am the Community Advocate for the ACLU of Wisconsin and I urge you to oppose SB 336.

AMERICAN CIVIL
LIBERTIES UNION OF
WISCONSIN
STATE HEADQUARTERS
207 EAST BUFFALO ST., SUITE 325
MILWAUKEE, WI 53202-5774
T/414-272-4032
F/414-272-0182
WWW.ACLU-WI.ORG

We agree that DNA analysis is a highly useful tool for law enforcement. However, the law has not kept pace with the development of this technology. State governments have begun cataloging people's genetic information in massive, nationally interlinked databases. This dramatic expansion of forensic DNA collection has not been accompanied by adequate checks and balances or proper consideration of the special threat it poses to privacy, civil liberties, and civil rights.

AMERICAN CIVIL
LIBERTIES UNION OF
WISCONSIN
MADISON AREA OFFICE
122 STATE ST., SUITE 201
MADISON, WI 53703-2596
T/608-469-5540
F/608-255-2688

SB 336 would radically expand the Wisconsin DNA collection program to individuals who have not been convicted of any crime. We believe this bill is unconstitutional, would distort the delicate balance between the need for effective law enforcement and civil liberties, and could ultimately undermine law enforcement's efforts by resulting in significant testing backlogs and increasing chances for error in DNA analysis. As such, we urge you to oppose its passage.

Database expansion to the innocent is an unconstitutional and unwarranted invasion of privacy¹

In America, people are presumed innocent until proven guilty. Thousands of people are arrested or detained every year and never charged with a crime. Housing a person's DNA in a criminal database renders that person an automatic suspect for any future crime – without warrant, probable cause, or individualized suspicion. While U.S. courts have generally ruled that DNA banking of convicted felons is permissible because a person who has been convicted of a crime has a “diminished

¹ For a detailed discussion of the impacts of expanding databases to the innocent see: T. Simoncelli, “Dangerous Excursions: The Case against Expanding Forensic DNA Databases to Innocent Persons,” *Journal of Law, Medicine & Ethics*, Vol. 34:2 (Summer) 2006.

expectation of privacy," this cannot be said for those persons who have simply been arrested.²

Law enforcement already has ample authority to collect a DNA sample from an arrested individual in those cases where a court-issued warrant supported by probable cause is first obtained. DNA samples collected under these circumstances may be tested and compared with the biological evidence collected from the crime scene in question. This warrant requirement strikes an appropriate balance between meeting public safety needs while ensuring that a person is not subjected to lifelong genetic surveillance unless or until he or she is convicted of a crime.

The privacy stakes associated with collecting and warehousing law abiding individuals' DNA are far greater than for fingerprints. While fingerprints are two-dimensional representations of the physical attributes of our fingertips that can only be used for identification, DNA samples can provide insights into personal family relationships, disease predisposition, physical attributes, and ancestry. Repeated claims that human behaviors such as aggression, substance addiction, criminal tendency, and sexual orientation can be explained by genetics render law enforcement databanks especially prone to abuse. These concerns are driven by current law and laboratory practice, where the offender biological samples are retained along with the generated DNA profiles.

It has been discovered that in at least some states, there are localized DNA databanks currently operating outside of a state's jurisdiction, which include the personal genetic material of innocent people and the exonerated.³ These "rogue databanks" are often run by local laboratories that do not fall under proper authorization and oversight. This means that the DNA of innocent persons can be retained indefinitely without their knowledge or consent. Such unauthorized activities place the privacy of innocent people at serious risk of having that information released to employers, insurance companies, and other third parties. Because this legislation fails to establish clear, proper procedures around the collection, storing, and expungement of DNA samples, these localized databanks are left virtually unregulated.

DNA database expansion is expensive and will divert funds from other critical programs

Proper DNA storage requires specialized equipment and specially trained personnel, both of which come with a high price tag. As DNA collection expands, space and equipment demands rise, along with costs. Given the harsh economic conditions and the statewide budget crisis, scarce funds would be better spent on more critical programs than storing genetic samples of individuals who have not, and may not ever be convicted of a crime.

Expansion to the innocent will exacerbate racial disparities in our criminal justice system

The expansion of DNA databases to arrestees would also perpetuate racial biases that are systemic to our criminal justice system. The persistent and well-documented practice of

² See, e.g., *Landry v. Att'y Gen.*, 709 N.E.2d 1085, 1092 (Mass. 1999); see also *Hudson v. Palmer*, 468 U.S. 517, 523 (1984); *People v. Wealer*, 636 N.E.2d 1129 (Ill. App. Ct.); *Jones*, *supra* note 6, at 308.

³ For instance in *NY*, *Hynes v. Leventhal/People v. Rodriguez*

discriminatory profiling in law enforcement⁴ combined with expanded DNA collection would result in an increasingly skewed criminal database in which minorities and poor people are overrepresented.

While racial disparities are systemic to our criminal justice system, they are especially dramatic at the point of arrest. A study in California found that while 92% of black men and 81% of Latino men arrested for drug offenses are eventually released because of a lack of evidence, only 64% of white men are. If arrestees are included in the DNA databank, the demographics of individuals included will not represent the population of actual offenders, but will instead become a catalogue of the genetic information of minority communities – a discriminatory boondoggle that will not serve public safety.

Database expansion to the innocent is impractical, irresponsible, and may be impossible

Privacy and racial justice issues aside, encouraging Wisconsin to expand its databases to arrestees is at best impractical and perhaps impossible. Laboratories across the nation are facing extraordinary backlogs. These backlogs, caused primarily by the heedless expansion of state DNA databases to ever more categories of individuals, have led to extensive delays in the processing and testing of rape kits and other crime scene evidence.

Lengthy delays in testing DNA from crime scenes can have tragic outcomes. For example, an emergency report issued last year by the California Commission on the Fair Administration of Justice, a bi-partisan panel of criminal justice experts and practitioners, documented enormous backlogs of approximately 160,000 untested DNA samples arising from the expansion of California's databank to all felons. In addition, the panel reported that "delays of six months or more have become the norm" in analyzing rape kits. In one case, a rapist attacked two more victims, including a child, while his DNA sat on a shelf awaiting analysis.⁵

Database expansion to the innocent will not make us safer

Since the FBI created the Combined DNA Index System (CODIS) in 1990, this interlinked system of state DNA databanks has been transformed from a narrowly focused law enforcement tool into a powerful tool of genetic surveillance.⁶ What was originally an index of profiles of convicted sex offenders has ballooned as states have begun collecting and cataloguing genetic material of larger and larger groups of people, increasingly including people who have never been convicted of any crime. This bill vastly expands our own state DNA database by including those who have been arrested, but not yet convicted, of a crime.

⁴ For example, a U.S. Department of Justice survey conducted in 2002 found that black and Hispanic drivers were subjected to searches, arrests and use of force more often than white drivers. Bureau of Justice Statistics, *Contacts between Police and the Public: Findings from the 2002 National Survey*.

⁵ California Commission on the Fair Administration of Justice, *Emergency Report and Recommendations Regarding DNA Testing Backlogs*, Feb. 20, 2007.

⁶ For a broader discussion of transformation of the use of DNA from one of investigation to surveillance, see: T. Simoncelli and S. Krinsky, "A New Era of DNA Testing: At What Cost to Civil Liberties?" *American Constitution Society*, August 2007. Available through: <http://www.acslaw.org/IssueBrief?page=8>

State law enforcement agencies have been convinced that the bigger the databank the more effective it is as an investigative tool and have sought to include the DNA of just about every sample they can get their hands on. This is misguided. While some have argued that permanently warehousing DNA of those convicted of violent crimes is warranted because of allegedly high rates of recidivism for these crimes, this rationale does not hold for those who have never been convicted of a crime. Moreover, you can't find a needle in a haystack by making the haystack bigger. At best, this is a situation of diminishing returns: as we expand the database to ever more categories of individuals and to the innocent, the likelihood that these individuals will ever be involved in a crime involving DNA evidence is less and less. In fact, a government study of the national DNA databank in the United Kingdom released in 2006 showed that the routine collection of DNA from individuals merely arrested has not resulted in a higher rate of crime detection.⁷

Conclusion

DNA testing is an extraordinarily important tool that can and should be used for solving crime. But each time we expand a criminal DNA database to include more categories of people and more DNA samples, concerns for privacy, legality, practicality, and cost escalate while returns to law enforcement diminish. Crossing the line from convicted offenders to arrestees or other innocent persons renders a database a tool for surveillance rather than one for investigating crime and should not be tolerated. By exposing arrestees to the "diminished expectation of privacy" reserved for those convicted of a crime, SB 336 violates one of the fundamental principles of American law: that one is to be presumed innocent until proven guilty. I strongly urge you to oppose its passage. Thank you.

⁷ See the December 4, 2008 decision by the European court of human rights in Strasbourg that collecting and storing DNA samples from innocent people violates Article 8 of the Human Rights Convention on the right to respect for private and family life.

Gun ruling reversal tests law

11/28/09

Hunter couldn't have gun after domestic violence

By BRUCE VIELMETTI

bvielmetti@journal-sentinel.com

A Rock County man sentenced to two years in federal prison for shooting a deer while he was on probation for domestic violence has had his case overturned by a federal appeals court.

The case could have far-ranging impact in the gun-rights debate. For Steve Skoien, it meant he'll be home for the holidays.

The 7th Circuit Court of Appeals

in Chicago ruled earlier this month that, in light of a major Supreme Court ruling about individual gun rights last year, prosecutors need to show that a lifetime ban on gun ownership for those convicted of domestic violence has a reasonable connection to reducing domestic gun violence. That 1996 law, the appeals court found, should not be grouped with other "presumptively legal" firearm restrictions mentioned in the 2008 Supreme Court case, known as District of Columbia vs. Heller.

The opinion by Judge Diane Sykes says that Heller's "reference

to exceptions cannot be read to relieve the government of its burden of justifying laws that restrict Second Amendment rights."

And so Skoien's conviction was reversed and his case sent back to Madison so prosecutors can try to meet that burden. On Wednesday, a judge ordered his release from federal prison in North Carolina, where he had been assigned to serve his sentence.

Skoien, 30, was convicted of misdemeanor domestic violence in 2006 and sentenced to probation. In 2007, probation agents learned Skoien had gotten a gun deer li-

cense. They went by his house and found a shotgun in his pickup. He admitted he'd used it to shoot a deer that morning. In fact, the carcass was in his garage.

A federal grand jury indicted Skoien for violation of a 1996 federal law that prohibits anyone convicted of domestic violence from ever possessing guns for any reason, often referred to as the Lautenberg Amendment. Skoien entered a conditional guilty plea, was sentenced to two years in prison and appealed.

Please see **APPEALS COURT, 38**

WISCONSIN PRO-GUN MOVEMENT

(414) 588-5515 P. O. Box 513 Greendale, WI 53129-0513

FIREARMS

TRAINING
EDUCATION
CONSULTANT
HISTORY & LAW

From page 1

APPEALS COURT

11/28/09

Hunter case reversed

From the beginning, Skoien argued that applying the federal law in his situation violated his 2nd Amendment right to possess a gun for hunting. U.S. District Judge Barbara Crabb denied a motion to dismiss, and a second motion made after the Heller ruling. That case found that the 2nd Amendment guarantees individual rights to have guns for self-defense, and that the total handgun ban in Washington, D.C., was therefore unconstitutional.

But the Heller court also said it wasn't trying to undo the many "presumptively lawful" gun regulations, such as those prohibiting felons and the mentally ill from having guns, or restricting guns from certain places.

While Crabb thought the ban on guns for people convicted of misdemeanor domestic violence obviously fit the same category, Sykes found that conclusion premature.

"We take all this to mean

that gun laws — other than those like the categorically invalid one in Heller itself — must be independently justified," Sykes wrote after discussing aspects of the Heller ruling.

Sykes explains that an intermediate level of review should apply. In other words, the government would need to show more than just a rational basis for the law, but not have to meet the very high standard known as strict scrutiny.

Preventing domestic gun violence certainly qualified as an important government interest. But the government must still show a law that perpetually bans someone convicted of domestic violence from ever having a gun is a reasonable means to that end. Sykes said the government didn't make enough of a record on that question, and sent the case back.

"If the government successfully discharges its burden, the district court shall reinstate Skoien's conviction," Sykes wrote

WISCONSIN PRO-GUN MOVEMENT

(414) 588-5515 P. O. Box 513 Greendale, WI 53129-0513

FIREARMS

TRAINING
EDUCATION
CONSULTANT
HISTORY & LAW

DOWN TO SUPPORT WILDLIFE CONSERVATION, JACQUES, 2001

Canadian Parliament's first vote is to scrap the long gun registry

In Canada, gun-control advocates are reported horrified and fearful that Canada's long-gun firearms registry is on the verge of being scrapped because the Conservatives seem to have enough support from the opposition to kill it. Canada's controversial 14-year-old long-gun registry is on the road to dismantlement after Parliament voted it down in Ottawa on Nov. 4.

United Press International and Canwest News Service reported that after a 164-137 vote, parliamentarians from three of the four national parties opted to send the registry law to an all-party committee for public hearings before returning to the House of Commons for a final vote, the reported.

The vote wasn't a death warrant for the registry. It still has to be examined by the Commons committee, pass again in the Commons and then in the Senate.

The rescinding bill was sponsored by Manitoba Conservative MP Candice Hooppner (Portage-Lisgar). Leaders of the opposition Liberals and socialist New Democratic Party (NDP) allowed their members a free vote although the

separatist Bloc Quebecois members all voted against it, the reports said.

The Toronto Globe and Mail said the vote exposed a split along rural and urban lines, as the 12 NDP, eight Liberal and one independent who sided with the Conservatives on abolishing the law were mostly from rural ridings.

The bill was enacted by a former Liberal government after a 1989 Montreal university massacre where a gunman used a semi-automatic rifle to kill 14 people.

A federal auditor's report in 2002 cautioned fully implementing the registry would cost more than \$1 billion, 50 times higher than the \$2 million original estimated.

The *Toronto Star* reported that Wendy Cukier, president of the Coalition for Gun Control, says her organization has been monitoring the progress of a Conservative private member's bill to abolish the registry and is now bracing for it pass.

"It not only eliminates the need to register rifles and shotguns but requires that the information contained on seven million registered guns be destroyed."

From The Desk of Barb Bruns

S1W31433 Hickory Hollow Court

Delafield, WI. 53018-2955 USA

Phone 262-968-5406 Mobile 414-333-1130

Fax 262-968-5407

Email barbarabrunswi.rr.com

Nov 30, 2009

To: Senate Judiciary Committee Members

Re: SB 174 and SB367

To the committee for the Dec 1, 2009 hearing:

I am again frustrated with some politicians' continued attempts at further chipping away at our constitutional rights. In this case I refer to our 2nd amendment right to bear arms. As a law abiding citizen and gun owner, I expect to be able to defend myself and family in the event my life is in danger. I have completed numerous gun safety and marksmanship courses and hold a state of Utah conceal carry permit which is honored in over 28 states. Of course not in Wisconsin! I have met many good law abiding people in the process. That carry permit makes me a good guy not a bad guy. My life has been carefully scrutinized and I have passed muster.

Just to give you some first hand perspective, I am involved in a local women's gun group made up of many ladies of all ages and walks of life who want to know how to use a gun, safely and well. Many are mothers and even grandmothers. The common thread that binds this group together is the desired ability to protect self and family if the need ever arose. This group has grown leaps and bounds just via word of mouth among friends and acquaintances in just a few short months. You might want to stop and think about the power of that. Yes, all respectable ladies!

I am against both of the above measures on both principle and practicality standpoints.

In regard to SB174, you are putting the cart before the horse. It is my understanding that handgun manufacturers do not yet have the production capability for this proposed micro-stamping. How do you propose to re-engineer gun manufacturers' production lines? Even if they did, it would make firearms more expensive needlessly. And what really

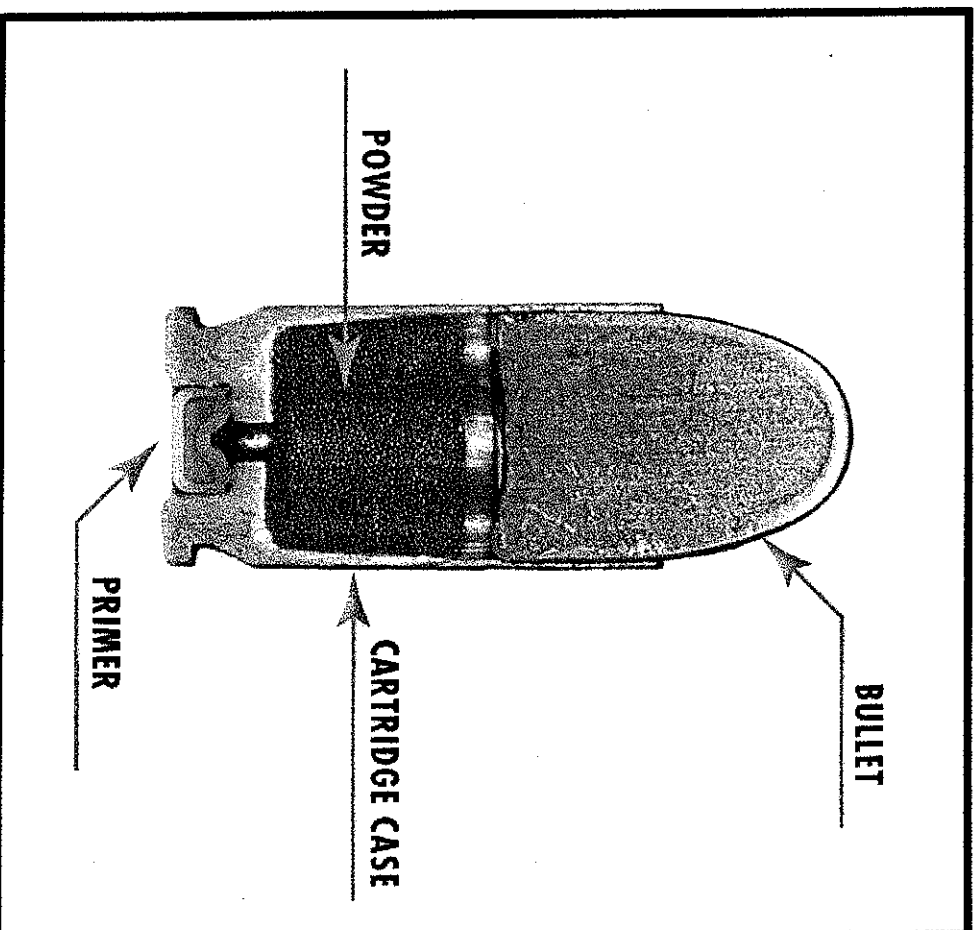
would be achieved? You thus place another burden on good citizens. The bad guys will always figure out a way around such a stamping, which I am sure could be easily removed with very simple tools. As I see it, you are simply trying to take guns out of the hands of law abiding citizens and making them defenseless. The bad guys will always find guns and you all know it. It looks clear to me that this is a roundabout way to try to ban handguns in Wisconsin.

In regard to SB367, again you are placing an undue burden on good citizens in the event there may be a theft of their gun. Not only are they violated by a theft of their property, but they are being threatened with fines and jail time if a theft is not reported within 48 hours. How did you come up with 48 hours? What if a citizen is unaware of any theft for days or weeks? We may not sleep with our guns. It seems like jail time seems to be the vogue lately from non-reporting a stolen gun to not having health insurance! How absurd and adversary has become this government of threats! This to me smells like yet another liberal idea to limit good citizens' rights and penalize the good folks. Have you thought of how you would enforce this? Are you going to create a new bureaucracy for this and where is the money coming from? And please tell me how you plan on enforcing this in tight urban areas like Milwaukee where there is never a lack of theft. You may be hurting the people that need to protect themselves the most! Again, this is yet another bad political idea just trying to chip away at our constitutional rights while the whole time trying to create another revenue source.

Give up these 2 very insidious proposals. They BOTH will make it even easier for the criminal. Let's just pass a good conceal carry law in Wisconsin. It is proven that states with conceal carry laws in fact reduce crime as the bad guy never knows if the good guy is armed. If you take away the good guys' guns, then only the bad guys will have guns and that's undeniable. These 2 bills will increase crime, NOT reduce it. VOTE NO! ON SB174 AND SB367. Barb Bruns

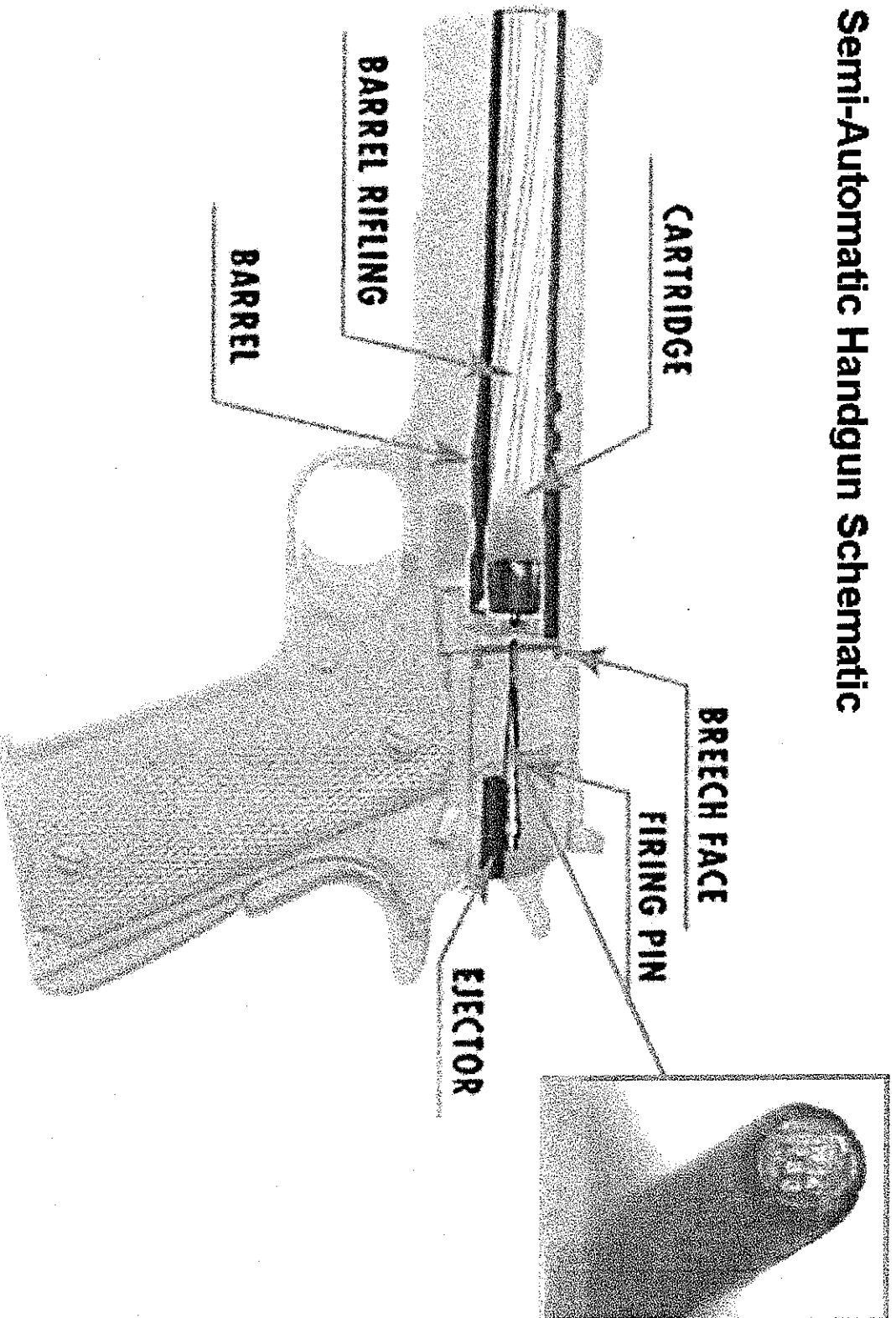
Intentional Firearm Microstamping

Components of a Cartridge



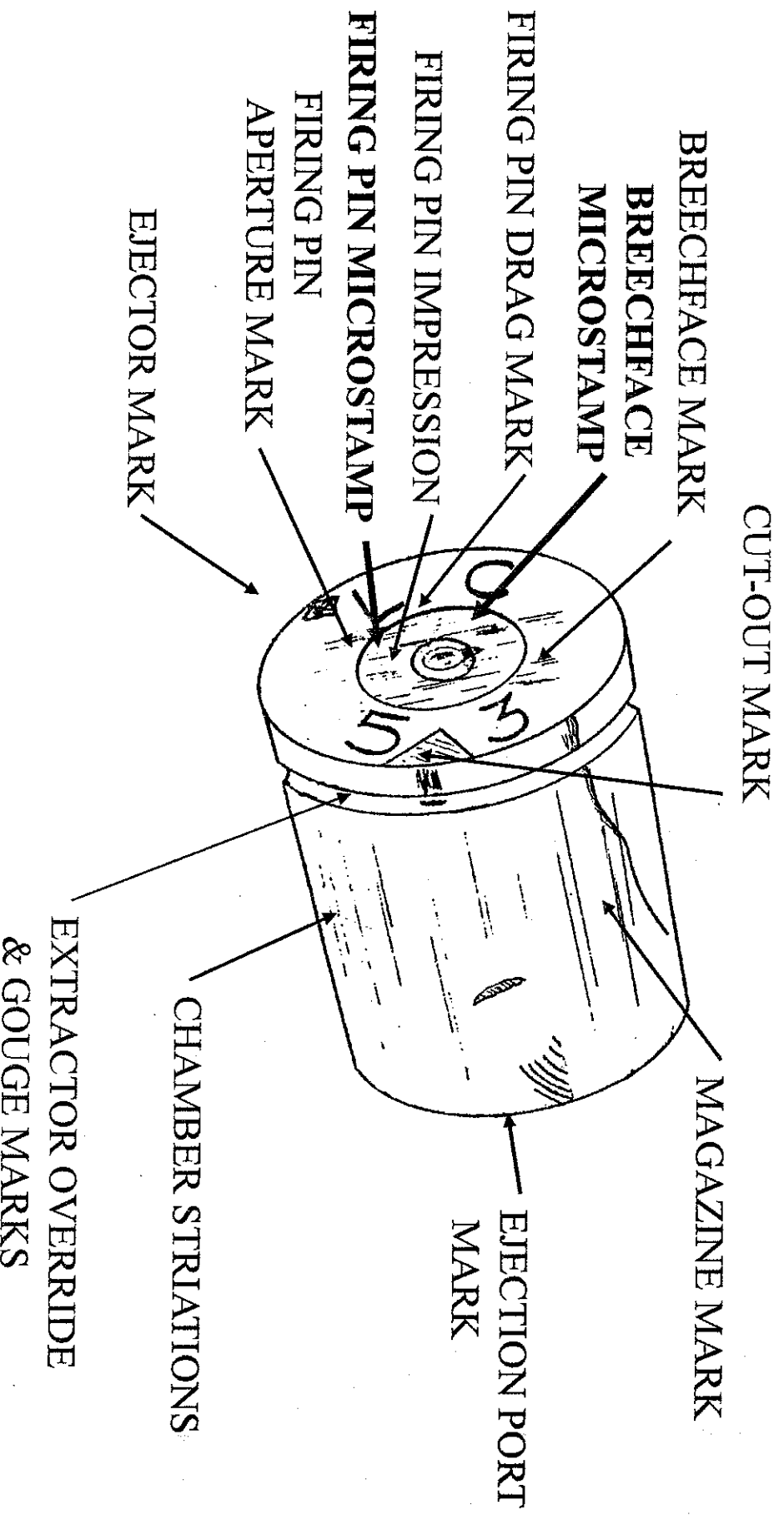
Intentional Firearm Microstamping

Semi-Automatic Handgun Schematic

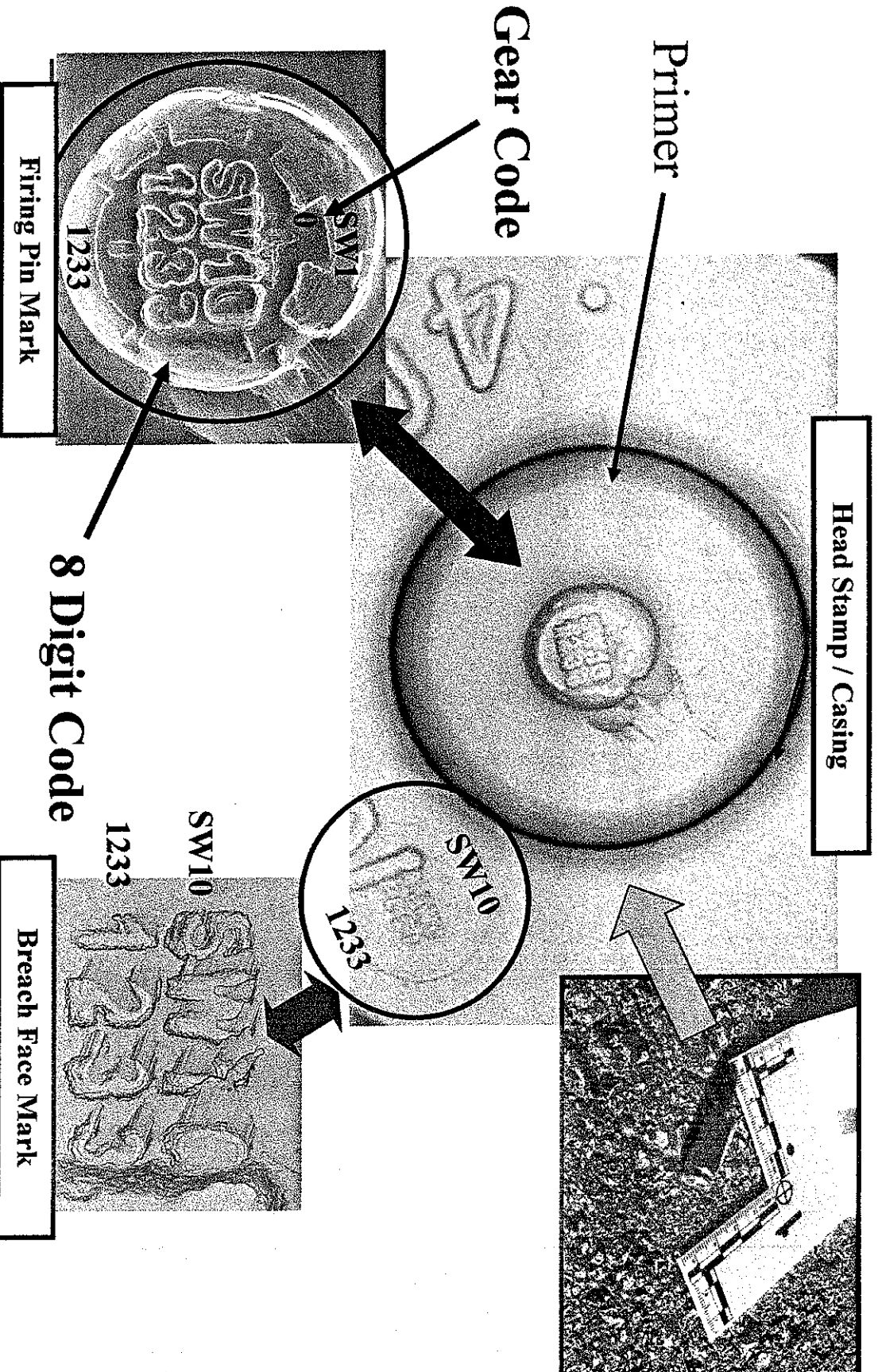


Intentional Firearm Microstamping

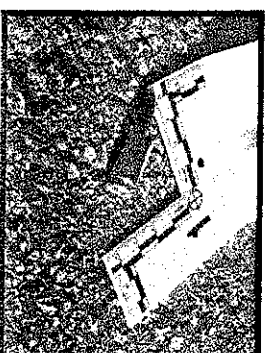
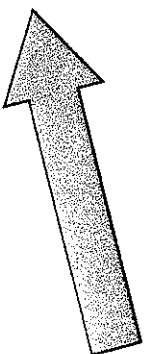
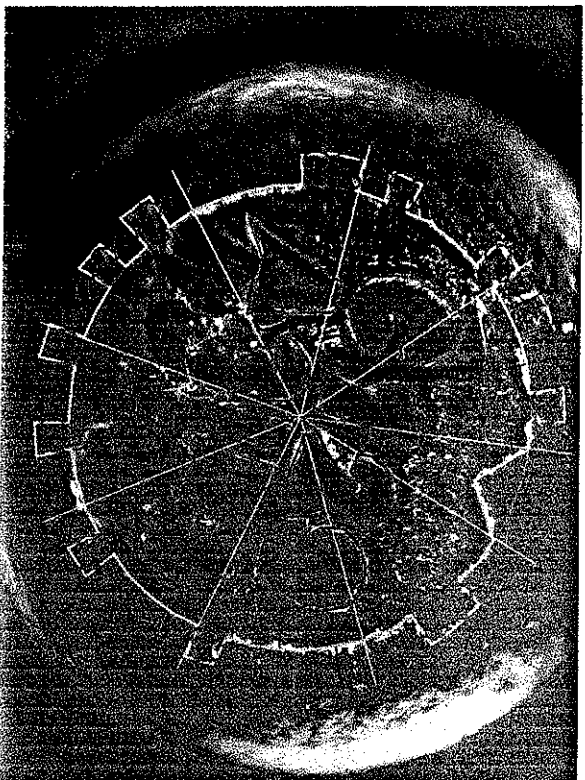
MARKS LEFT ON EXPENDED CARTRIDGE CASINGS (cycle of fire marks & microstamping marks)



Extracting Data **"Observational / Absolute Certainty"**



Extracting Data "Observational / Redundant Geometric Codes"



Encoded 8 Digit Gear Code

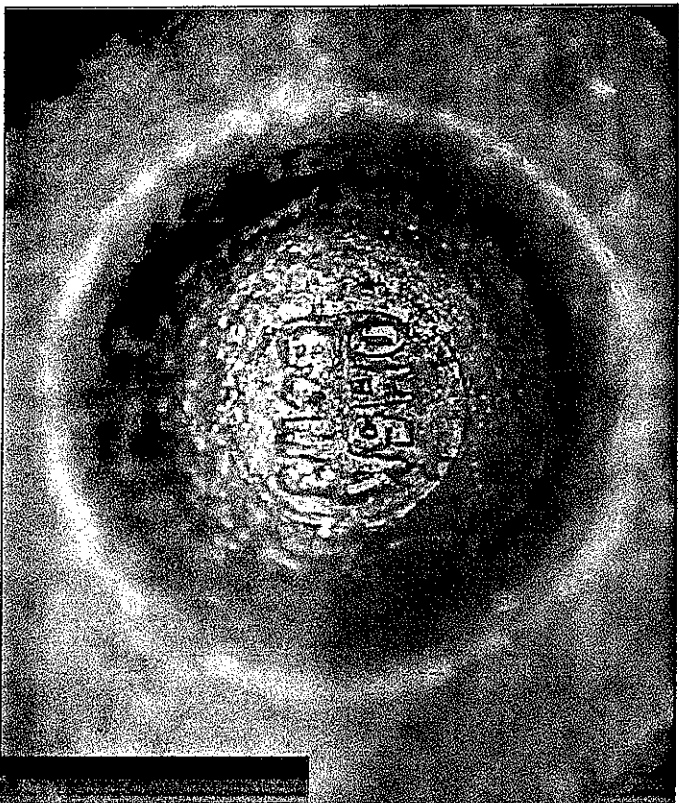
1. It is mechanically out of phase with the primary central 8 digit code
2. Provides confirmation for any obscure or missing characters.

Extraction Identifiability Score

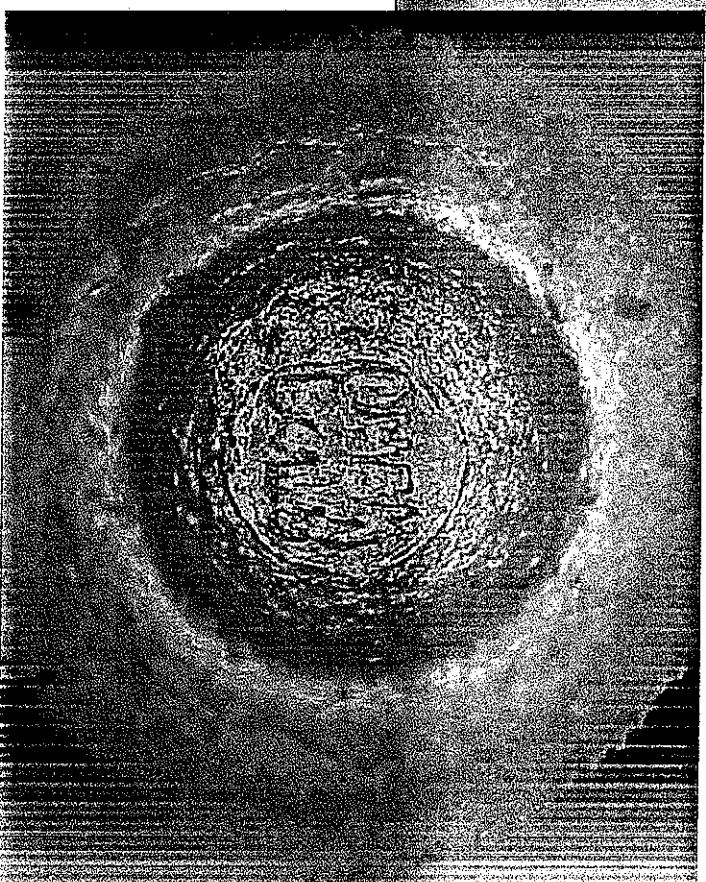
45 APC test fired: June 25, 2008		Alphanumeric Code										Gear Code								Combi Score
Cart#	ID	C 1	C 2	C 3	C 4	C 5	C 6	C 7	C 8	AC o/a	G1	G2	G3	G4	G5	G6	G7	G8	GC o/a	
	Score	1	1	1	1	.75	.75	.50	.50	.81	1	1	1	1	1	1	1	1	1.00	1.0
Extra Code		C	1	2	9	A	3	H	J		C	1	2	9	A	3	H	J		C129A3HJ

Table 1: Test fire # 371 shows how redundant codes combine to deliver 100% extraction certainty

Intentional Firearm Microstamping



**Fired Cartridge Cases
from the
Browning 1917A1 MG
after ~2500 rds.**



From a Study by Lucien Haag Presented to
the National Academy of Sciences

Intentional Firearm Microstamping



**9mm Glock
Firing Pin Impression
after
1400 rounds**

**Glock Firing Pin
after
1400 rounds
(image reversed)**



From a Study by Lucien Haag Presented to
the National Academy of Sciences

Intentional Firearm Microstamping



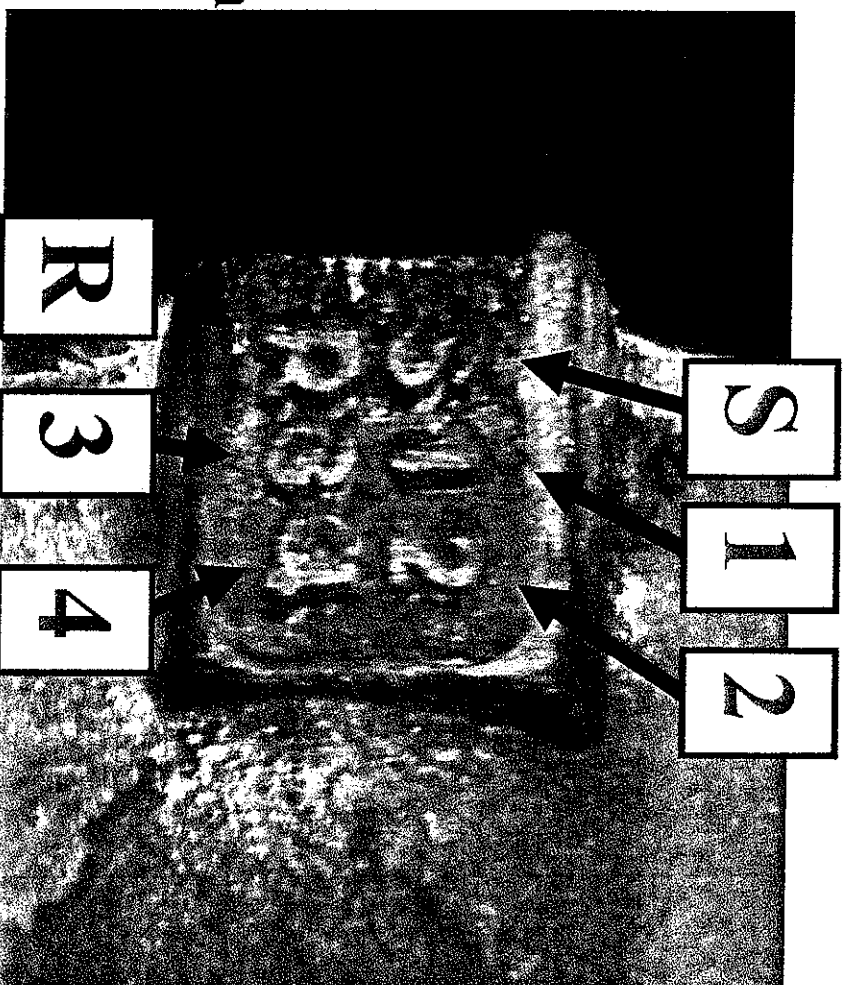
Optimized Ruger Mark III – 22 LR
Rim Fire Cartridge (#128)
“Single Hit”

akjddIngakjfdng

Todd Lizotte – Pivotal Development
Microstamping Technology Transfer Center
Copyright 2007, 2008, 2009 / Patented / Patent Pending

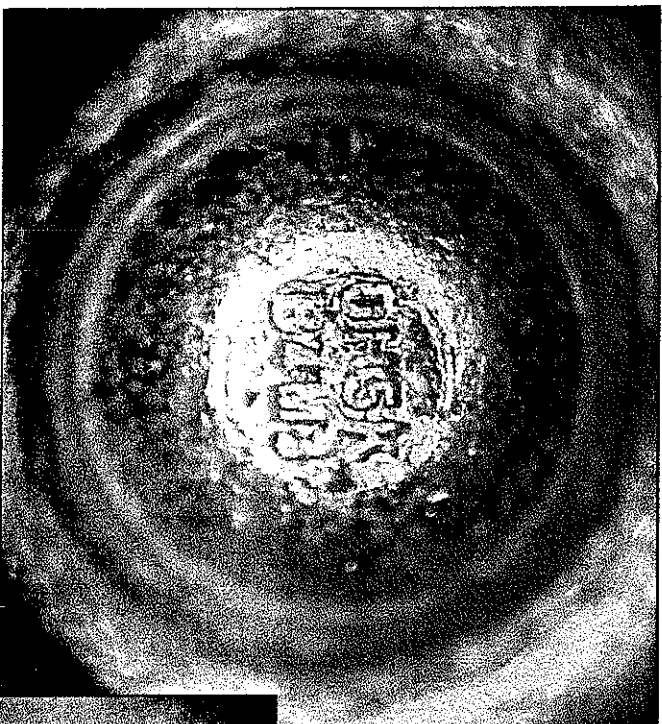
* Cross Polarized Ring Illumin

* Flipped Image For Clarity



Todd Lizotte – Pivotal Development
Microstamping Technology Transfer Center
Copyright 2007, 2008, 2009 / Patented / Patent Pending

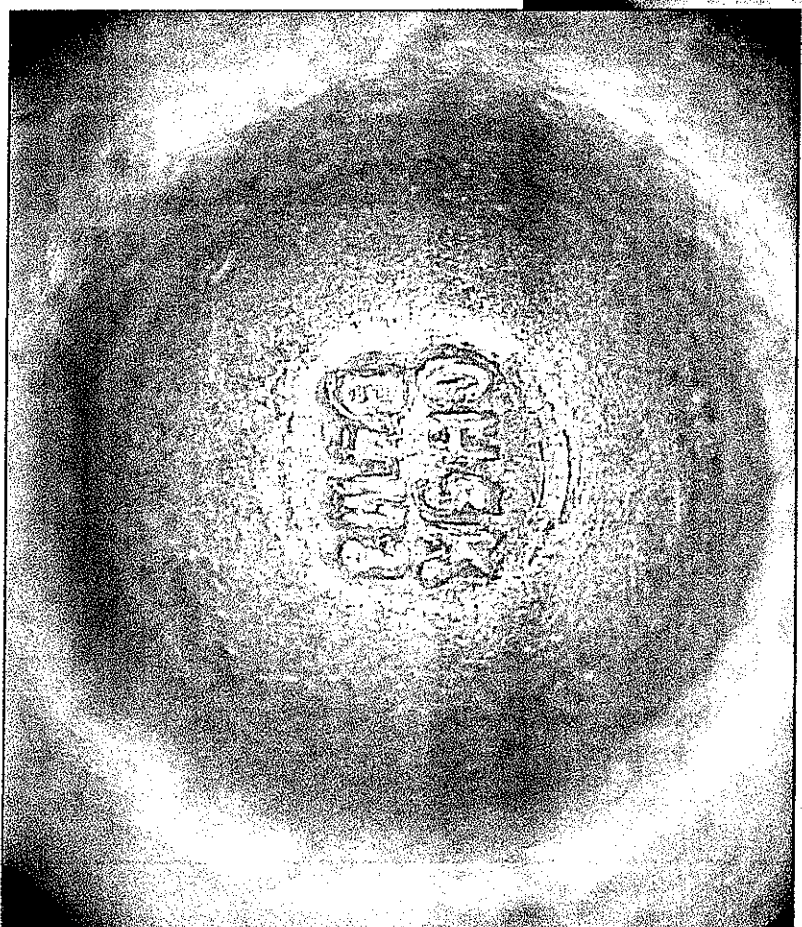
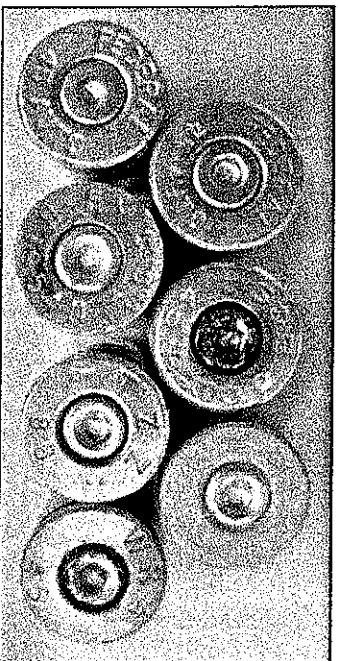
Intentional Firearm Microstamping



**Fired Cartridge Cases
from the
Thompson SMG
"Sub Machine Gun"
after 2500 rds.**

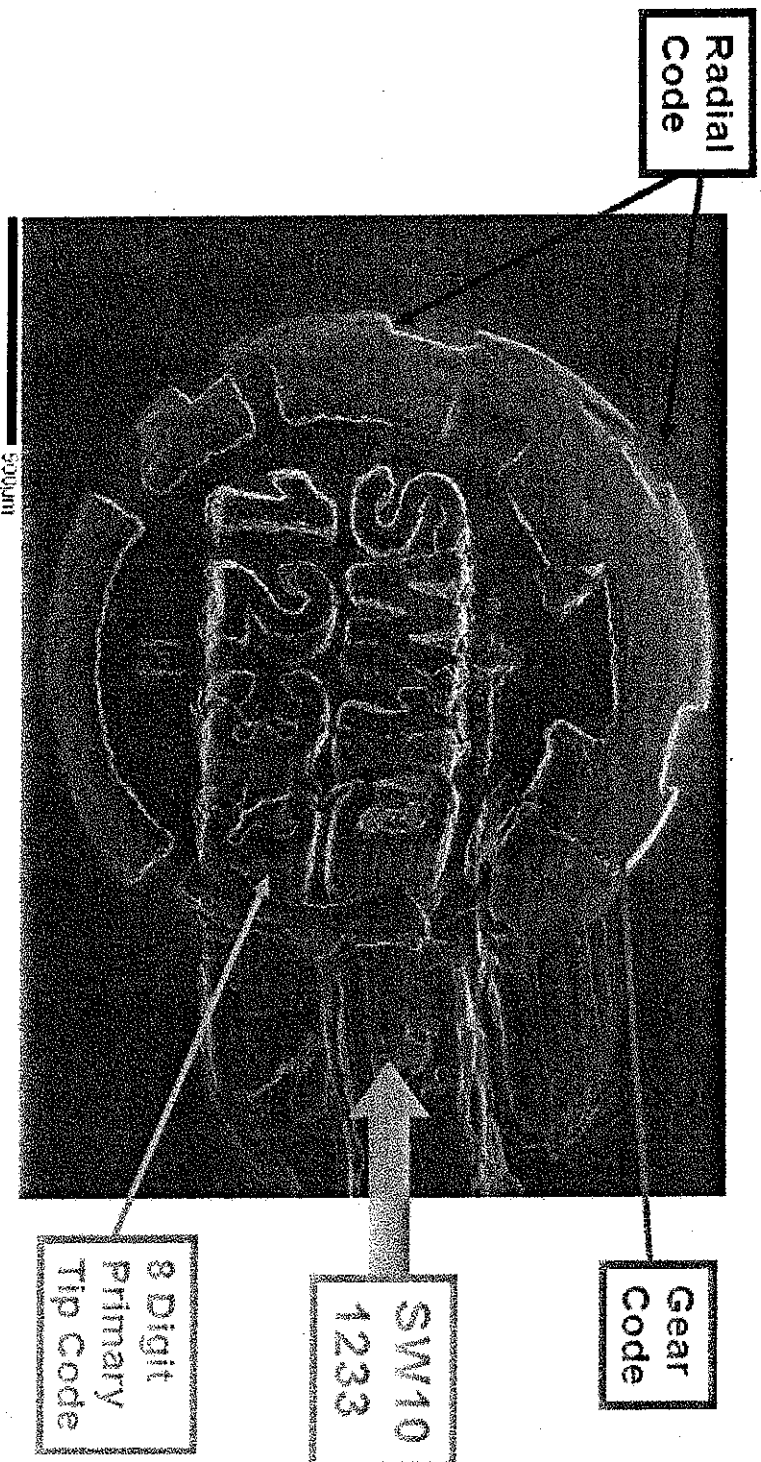
From a Study by Lucien Haag Presented to the National
Academy of Sciences

.45 Cal Cartridges Used



Intentional Firearm Microstamping

S&W 4006 – 2500+ Cartridge Test

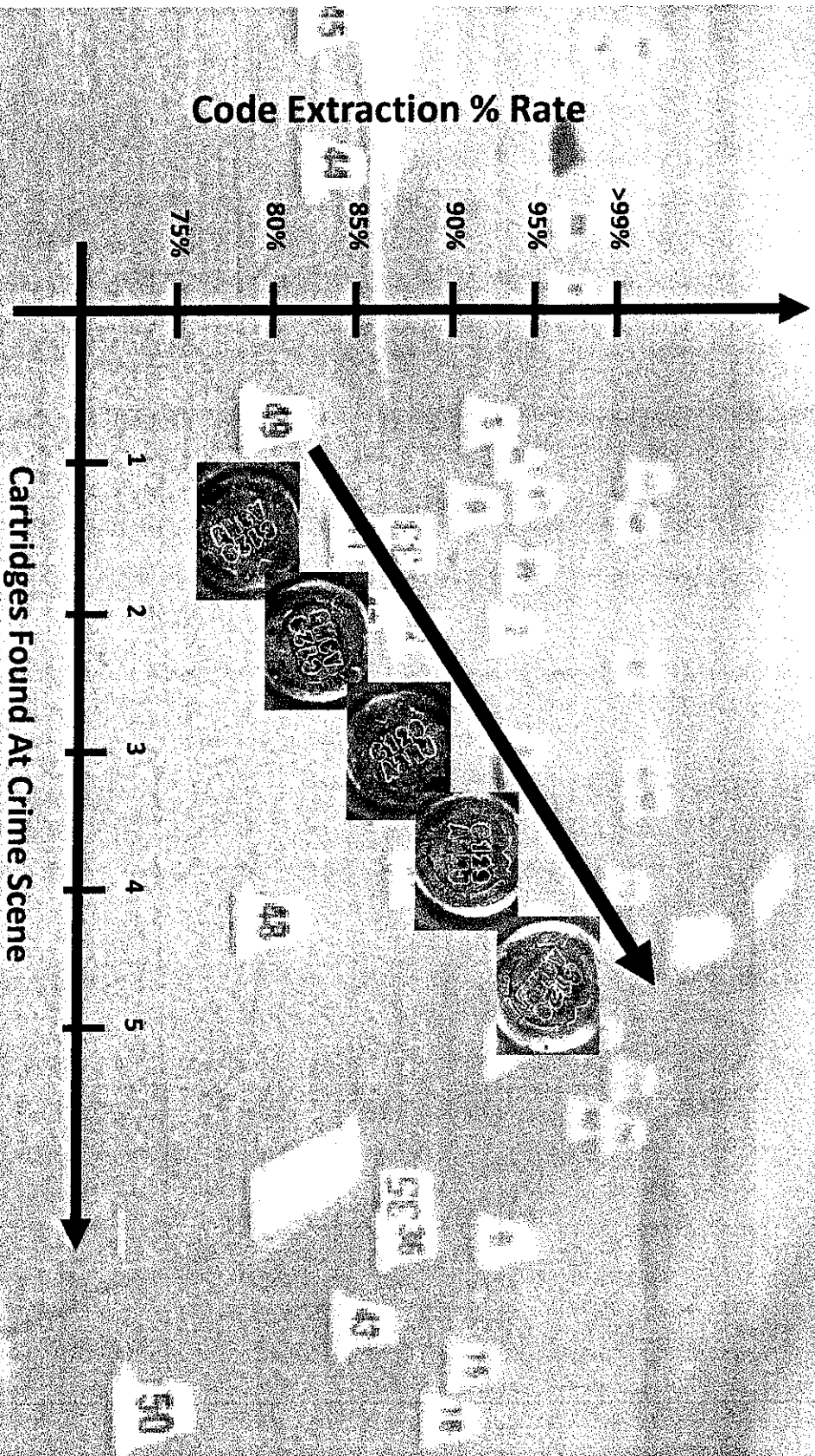


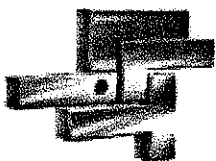
Cartridge #2501 – Scanning Electron Microscope (SEM) Image
.40 Cal – 60X Magnification / Embossed Primer
(Double Hit – With Pin Drag) Higher Clarity w/ SEM Image

Copyright 2006,2007

Todd Lizotte – Pivotal Development
Microstamping Technology Transfer Center
Copyright 2007, 2008, 2009 / Patented / Patent Pending

Extracting Data "Multi-Cartridge Integration"





LASERLIGHT
TECHNOLOGIES, INC.

September 10, 2007

THE HONORABLE MIKE FEUER
California State Assembly
State Capital
Sacramento, California 95814

Dear Assemblyman Feuer:

Thank you for this opportunity to explain how Laser Light Technologies, Incorporated (LLTI) anticipates processing firearm components on a job-shop basis in compliance to the pending bill AB1471.

Our staff at LLTI has extensive knowledge in producing these types of micro-marks and microstructures used to form the basis of microstamping. Even in the worst case scenario LLTI has determined that the service price would range between \$0.50 and \$3.00 per surface processed, based on volume. It should be noted that LLTI has provided such micro-marking serialization on ultra hard materials with marking volumes reaching millions per year. LLTI was awarded the Small Business company of the year in 1996 for the entire US. This award was founded on a major contract from 3M for micro marking.



NANOMARK
TECHNOLOGIES

ID Dynamics Royalty Free License In Support of AB1471

(Seattle, WA.) June 15th 2007 – *NanoMark* a wholly owned division of ID Dynamics, LLC is issuing this press release to clarify that a royalty free license will be provided and cover its patented microstamping technology as applied to semi-automatic handguns sold for civilian use within the United States and its territories, as stipulated and in support of AB1471.

Highlights:

- Royalty free license for semi-automatic firearms (as stipulated in AB1471) for civilian use over the entire United States and its territories

More Information

- Todd Lizotte, Pivotal Development
 - info@microstamping.net and telizotte@pivotaldevelopment.com
 - 603-493-2579
- Joshua Horwitz, Educational Fund to Stop Gun Violence
 - jhorwitz@csgv.org
 - 202-408-7560 x1001